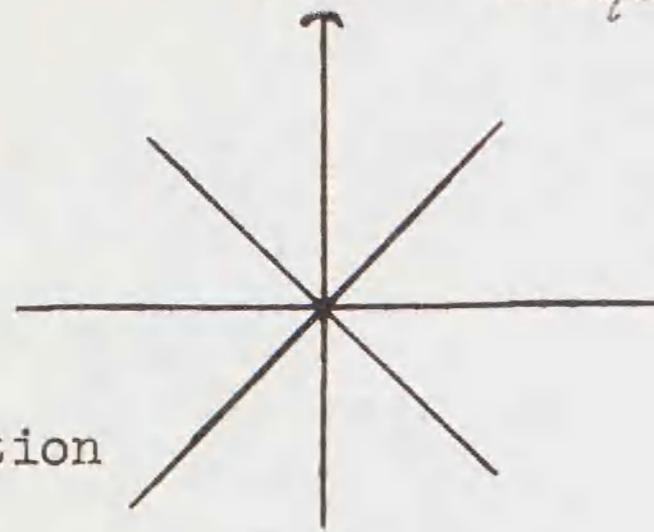


185 - changed to 162 at 1400

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - EShip
Direction

OBSERVERS:

T. J. Lewis, R. L. Pyle

SPECIMEN

or

Date Oct 16, 1967
Pg. # 1

Non-grid

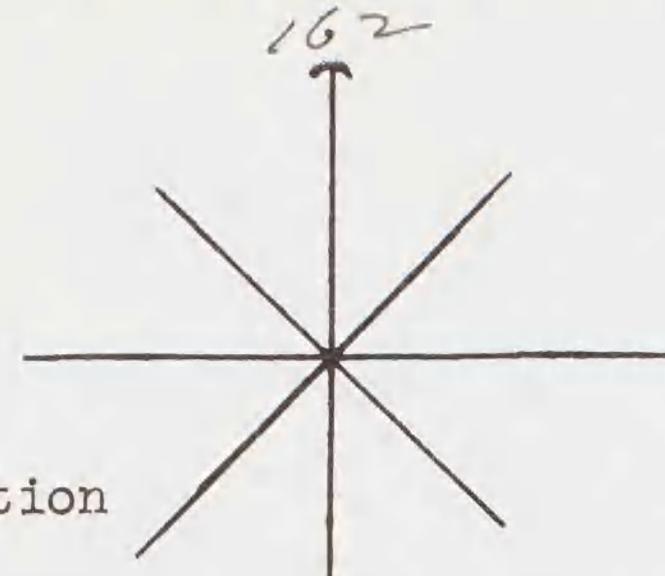
TIME SPECIES # DIR. BAND NO. REMARKS

1240					open obs
1240	W. Gull	2	ee		
	Calif Gull	6	ee		{ around ship
	Gull sp	4	ee		
1242	Cormorant sp	2			sitting
1244	Calif Gull	2			sitting
	Gull sp	5	ee		
1245	Pelagic Cormor.	1	N		small, thin bill, dark glossy, thin neck, small head
1248	W. Gull	1	S		
1250	Gull sp	2	ee		Lots of large brown jellyfish with streamers up to 5'
58	Bal. Gull	15	ee		
59	Phal sp	1	ee		on H ₂ O
1301	Phal sp	1			heard calling
02	"	4	ee		on H ₂ O flushed w
03	Cassin's Aukslet	1	ee		Prions
04	Phal sp	1	ee		on H ₂ O
05	Red Phalarope	1	ee		" winter plumage
06	Gull sp	16	ee		on H ₂ O
08	Phal sp.	1	ee		" "
08	Herring Gull	1	ee		
10	Andabooic Wsh	1	ee		Landshark Shrs. Imm
10	W. Gull	2	S		CASSAHL - 3
14	"	1	N		R PHAL - 1
20	Red. Murse	1	ee		HEMING - 1
21	Gull sp	1	ee		ADOW - 1
22	Small Alcid?	1	ee		CELPHAL - 2
27	Sooty Shearwater	4	ee		SMALL - 7
29	New Zealand	1	ee		SS - 7
30	" "	1	ee		NZS - 2
34	Small Alcid	1	ee		
38	West Meadowlark	1	ee		done
39	Sooty Shear	1	w		on deck for two mins. - collected TJL
43	Sooty Shear	1	w		W MAG - 1
46	Sooty Shear	1	w		BR PEL - 11
47	Murre	1			MD - 1
49	Cassin's Aukslet	2			on water
50	small alcid	1			on water
51	West. Gull	1	ee		on water - dove - Cassin's Aukslet or next similar form
52	Pelican	11	w		Imm - species reliability 2
53	Gull sp	6	eee		distant
55	Calif. Gull	1	ee		
56	" "	5	eee		had, 1 imm
56	Gull sp	1	ee		
58	Small alcid	4	ee		took off from water - 2 pair
1400					course changed to 162
05	Mourning Dove	1	ee		Circled ship + left
05	Gull sp	5	ee		
07	W Gull	1	ee		on the Imm

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162

Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

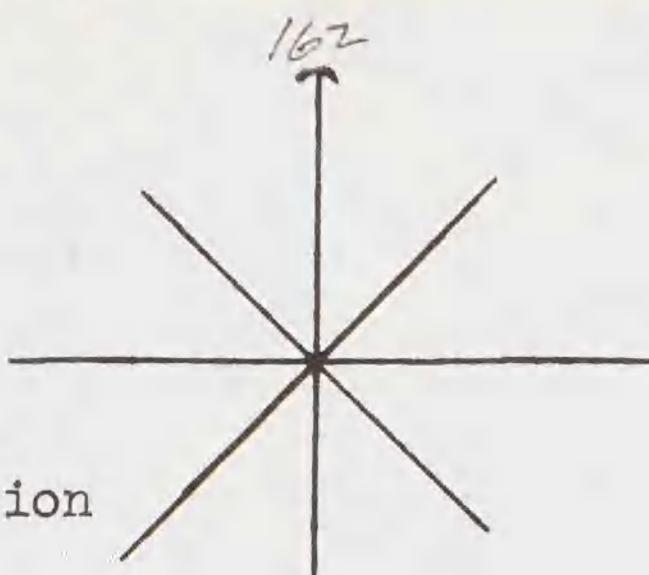
SPECIMEN

or

TIME SPECIES # DIR. BAND NO. REMARKS

Date 160467
Pg. # 2

1409	W. Gull	1	W	Imm	W GULL - 4
10	Cal. Murse	1	SE	on water	C MURSE - 1
	Cassas Auks	1	SE	on water	CASSAS - 1
	Shearwater sp.	1	SE	W	
	Gull sp	2	SE		
11	W Gull	1	SE		
12	N. Phal.	1	SE		N PHAL - 6
14	Sabine Gull	3	SE	on H ₂ O called	SABG - 45
19	Shearwater sp	2	SE	on H ₂ O	
20	Gull sp	1	SE	on H ₂ O Imm	
23	Alcid sp	1	SE		SABG - 3
24	"	1	SE		
25	Gull sp	3	SE	on H ₂ O	ALCIDSP - 4
26	Sooty shear	1	SE	SE	
28	Small Alcid	2	W		SS - 2
28	Sooty shear	2	SE	on water	
29	Small Alcid	4	W		SABG - 14
RF	Pink-footed	28	SE	on H ₂ O	PINKFOOT - 28
	New Zealand	2	SE	on H ₂ O 3 together	NZS - 3
33	Gull sp	6	SE	"	
38	Alcid Small	1	SE		
39	Gull sp	2	SE	on H ₂ O	BONG - 2
54	Gull sp	3	SW		R. PHAL - 2
55	Bonaparte Gull	2	SE		PHALSP - 2
57	Alcid Small	3	SE	on H ₂ O	RHINAK - 1
58	R Phal	2	SE		
	N Phal	3	SE	3 together on H ₂ O Non Breeding Please	
	Phal sp	1	SE	on H ₂ O	FOAM - 1
FF	1504				105 ✓
	1504				
	Gull sp	23	SE		
07	New Zealand	1	SE	Feeding on seal sp different section from other 1504	
08	Phal. sp	1	SE	sighting	
11	Redins Auks	2	SE	called	
11	Small Alcid	3	SE	on H ₂ O probably R. A.	
11	Shearwater?	2	SE	on water	
13	N. Phal	3	SE		
14	W. Gull	1	SE	on H ₂ O Non Breeding Please	
15	Fulmar	1	SE	Imm	
15	Small Alcid	1	SE	on H ₂ O Dark	
15	N Phal	2	SE	dark	
16	Gull sp	2	SW	Non Breeding Please	
18	Cal. Sea Lion	1			
19	Gull sp	3	SE	2 imm, 1 ad	
20	Seal/sealion	2			
24	Gull sp	1	SE	propose 3 small - small don't, didn't	
25	Shearwater	1	SE	come out of H ₂ O	
26	W Gull	1	SE	probably Pink-footed or New Zealand (2 sections)	
					SI-MNH-958-e
					Rev. 5-66



Ship
Direction

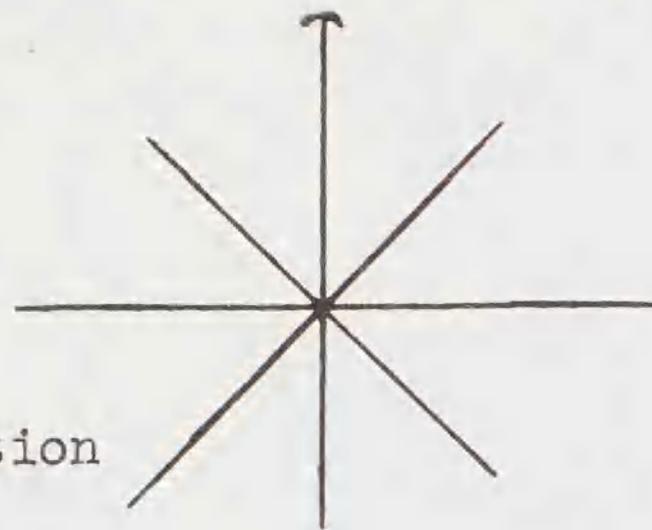
SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Date 16 Oct 67
Pg. # 3

SPECIMEN
or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS	
1528	St. Pet SP	1	SW			
29	Cal. Gull	1	ee		Ad	
29	Gull SP	1	IVW			
30	Cal. Gull	1	SW		Ad	
32					cal sea lions (2)	
33	Sabine Gull	4	ee			
35	Cal Gulls	2	ee		on H ₂ O flushed to South Non Breeding Plunge	
	Gull s sp	3	ee		Ad	
37					cal sea lions (2)	
38	Phalarope sp.	6	ee		on H ₂ O	
39					whole - probably Gony -	
41	Smart Alcids	2	E			
44					(cal sea lions 1)	STORM - 2
44	Cal Gull	11	ee		Following 5 Ad 5 Imm 1 sad	CHG - 23
	W Gull	2	ee		Imm Following	GULLSP - 13
50	Cal. Gull	1	ee		ad	SABF - 6
50	W. Gull	1	ee		imm	
53					sealion -	PHALSP - 51
55	phalarope -	6	eee			
56					sealions - 4	Smart alc - 4
57	phalarope	5			on water	
1600	phalarope	5			on water	W GULL - 7
	W Gull	1	ee		imm	SS - 6
	Gull sp	4	eee			JAEGER - 1
1602	Sooty sh.	1				MYRALLA SP - 2
1605	Cal Gull	4				
	Gull & Sabine Gull	5			imm	R PABL - 1
	Sooty sh	2			wh wings lining seen well	
	Jaeger sp	1			ad, 1 st phase	
1606	Murrelet sp	2	W		not with FF	BIRD - 1
12	Phal sp.	1	ee			
12					on H ₂ O	117 ✓
15	Smart Alcid	2	ee		sealion (1)	
17	St. Pet.	1			abt H ₂ O	
20	W. Gull	3			adult imm on water, imm flying	
21	Cal. Gulls	3	ee		ad	
25	Sooty sh.	1	SW		rel 2	
38	Sooty sh.	1			rel. 2	
50	Phalarope sp	1	eee		on H ₂ O	
51	Sooty sh	1	ee			
51	Phal. sp.	2	ee		on H ₂ O calling	
52	Phal sp	2	ee		" "	
55	B. Phal	1	ee			
56	Phal sp	2	ee		on H ₂ O - Non Breeding Plunge	
57					seal go	
1700	Sooty Shear	1	NP			
01	Smart Boob	1	SW			
04	Phal sp.	1	ee		on H ₂ O	



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

SPECIMEN

or

TIME SPECIES # DIR. BAND NO. REMARKS

OBSERVERS:

Date 16 Oct 67
Pg. # 4

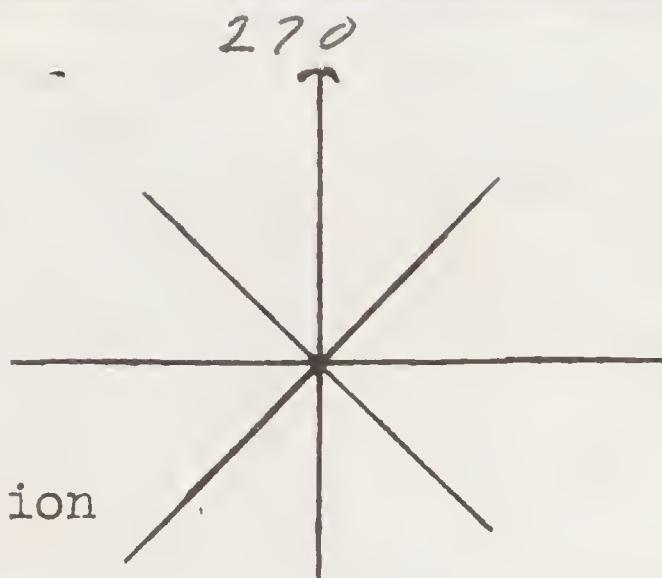
Ship
Direction

M

M

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1707	Phal sp	7	a		on H ₂ O
08	N. Phal	1	ee		" " " Breeding Blunze
09	" "	3	ee		" "
1721			N		porpoise? - 3 - small, dark, collected out of water <u>very slowly</u> , without hardly a ripple - seemed to have hump on the back, behind fin
1726			N		black Same kind of animals - 3 more - other side of ship
1727	Storm Petrel sp	2	SW		
1728	St. petrel sp	1	E		
1732	Bird-sp	1			Bulls - about 1 or 2 per minute - seen for past few hours - most are probably same birds staying near ship.
1738	SOOTY SH	3	ee		sitting on a board - distant - directly in sun
1747	STORM PET	1	ee		ON H ₂ O
1750	WEST GULL	5	ee		3 imm 2 ad.
1756	SOOTY SH	1	ee		
1800					as above sightings dorsal small, white tip ca 10
1801	ALCID SP	2	ee		small, showing white on H ₂ O in sun
1808	STEAM SP	1	N		NZ / PINK F.
1812	PHAL SP	1	ee		ON H ₂ O PHAL SP - 9
1813	JAEGL P.	4	ee		1 dk 3 lt. pom?? N PAAZ - 4
	SKUW	1	ee		
1813	BR. PEL.	1	ee		ON H ₂ O STORM - 4
1814	PHAL SP	4	ee		BRAD - 1
1815	ALCID SP	2	ee		SS - 5
1820	POM. JAEGL	1	ee		W GULL - 5
1830	SOOTY SH	1	ee		SOOTY GULL - 2
1831	PINK-FOOT TSA	1	ee		SHRIMP SP - 1
1832					J SP - 4
NOCT					SHIVA - 1
1840	JAEGL SP	20+	ee		1 ad pom seen } SITTING ON H ₂ O BR PEL - 1
	SOOTY SH	8+	ee		SHORTLY AFTER SS
	PINK-FOOT	3+	ee		
	GULL SP	7+	ee		ALCID - 2
					POM J - 1
					PINK - 1
					41 ✓

270

Ship
Direction

OBSERVERS:

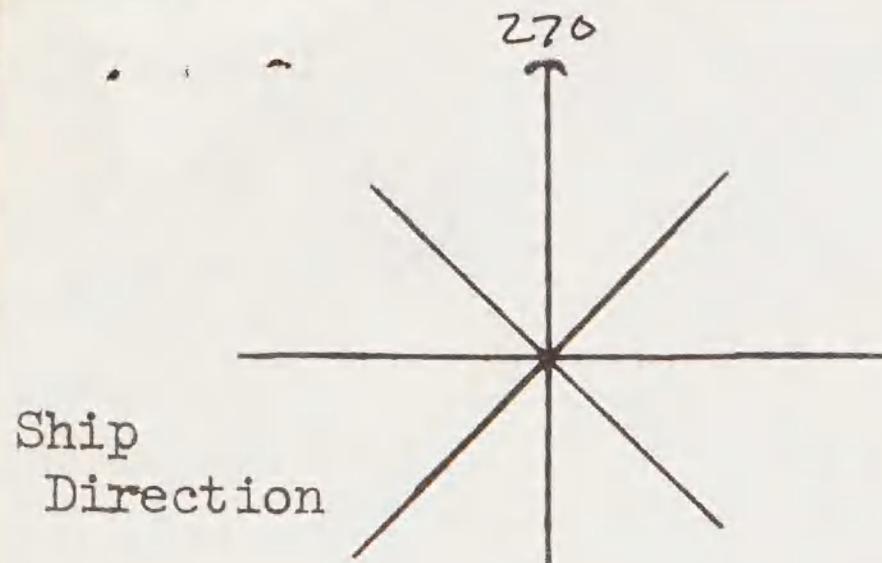
SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

SPECIMEN

or

Date 17 Oct 67
Pg. # 1

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0700					Right whale dolphin (35) Beg in observation
0716					Baird's Dolphin 3 riding Bowwave
22	N. Phalarope	2	ee		Dolphin sp. (Probably Baird's) 100±5
34	Tropic	1	E		35-00 122-45
37	N. Phal	14	ee		Sanroa
44	Acid	2	ee		on the Non Breeding Phase
47			ee		David
0812	BFA	1			on the non-br. plum
0816					" "
0825					Porpoise 15±3 35-00 122-53
0832	Sooty sh	1	SW		following - narrow white rump band
0910					Skiff in water - Chamber + 2
0940					Right whale dolphin - 100t - in tight line travelling
1015	Gull?	1	ee		west - up to 40 in view at once. small, black, no dorsal fin. - In view about 20 mins.
1029	Red Phalarope	7	ee		from skiff
1033	Pom? Jaeger	1	SE		large white bird, dark wings particularly toward tops - Underwings white - Alternately sitting and flying low to water - back in ship's wake - nearly as large as BFA - also following. Wing flapping continuous - gull-like, not like albatross or shearwater.
1040					Flushed from water - non-br. plumage
1124	Herring? Gull	1			dark ph - Pomarine rel. 2. - large; heavy flight. 35-00 123-15
1132	Storm petrel	2	W		Gray whale - surfacing, blowing, finally diving showing
1146					flukes. Not seen thereafter. "hump" in back at beginning of dive was not quite pronounced enough for humpback.
1200	Phalarope	1	ee		immature - 1st yr - Herring? possibly E. schrichtii gibbosus
1207					rather uniform brown. - Western. - Herring rel. 2
1410					Following ship hour - arrived from west.
1411	BFA	1	ee		Paralleling ship at good distance - together.
1412	N. Phal	20	eee		Enter Heavy Fog V-sibility 300 ft or less
1430					called Natacon
					close observations
					open "
					Following ship
					on the Non Breeding Phase
					Dolphins? (5) with dorsal constricted
					rode Bow wave 1/3 black & proximal 2/3 white cap. 6 ft
					34 5 9 124-04
					Photographed TJK
					SI-MNH-958-e



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

SPECIMEN
or

Date 17 Oct 67
Pg. # 2

TIME SPECIES # DIR. BAND NO. REMARKS

1535					Porpoise ca 10 3459 124-13
43					" " 10
1555	BFA	②	ee		1lt, 1dh.
1612	JAGA SP	1	SE		ad par. rel. 2 lt, dh.
1616					
1630	BFA	③	ee		SPERM WHALE REL. 2 - 1 INDIVIDUAL 34-59 124-20
1810					Whale spouting - small, broad spout - animal ¹²⁴³⁸ _{not seen}
1822					2 whales spouting - travelling fairly close together
1842					Sunset - close observations

N PHAL - 36

S SP. - 2

ALCID SP - 2

SS - 1

R PHAL - 7

POM J - 1

GULL? - 1

HER G - 1

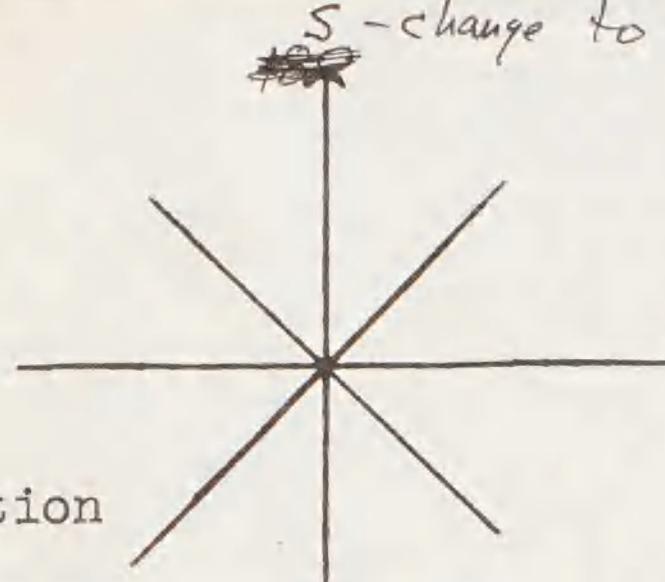
STORM - 2

PHAL SP - 1

54 54

S-change to E ~0825

Ship
Direction



OBSERVERS:

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

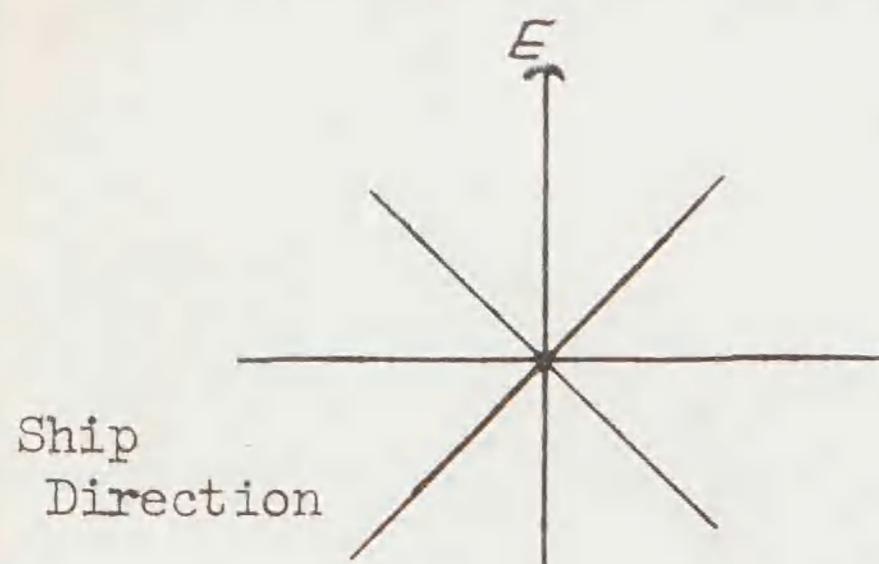
SPECIMEN
or

Date Oct 18, 1967
Pg. # 1

TIME SPECIES # DIR. BAND NO. REMARKS

0730					Begin Observations	34-23 126-28
0730					Poypoise - <i>Delphinus</i> perhaps - tight pod of up to 35 visible at once - others scattered behind - 100± animals leaped clear of water, dorsal fin prominent - light poor.	
0732					Poypoise - second group in another direction - very distant so that only splashed area visible - probably same species - 50± <u>same</u>	
0733					Sunrise	
0740					Sun first appears over cloud bank along horizon	
0816	BFA	1			no white ^{tail} following	
0825					Begin change of course to east heading - completed 0828	
0845	BFA	1			still following - no white in rump	
0920	BFA	1			Different from earlier BFA - pale upper tail coverts, but not a sharp narrow band like yesterday's bird	
1148	Lesser Sooty Tern Yellowlegs	1	ee		circled ship then went South	
1300	WRSP	2	E			
1320	RTTB	1	ee		on H ₂ O Ad	
1630	BLACK-BELLIED Plover	1	ee		winter plum	
1631	RTTB	1	ee		rose off H ₂ O ad.	
1632	RED PHAL	1	ee			
1645	RED PHAL	1	ee		on H ₂ O	
1655	LEACH SP	1	ee		white rump	
1715	BIRD SP	1	S			
1807	DRSP	1	ee		Pronounced light wing marks - Hovered briefly at or just above surface with wings held aloft - Couldn't see color or length of legs.	
					Sunset - close obs.	

BBP - 1
YELLOO - 1
WNSP - 3
RTTB - 1
RTTB - 1
R PHAL - 2
BIRD - 1
DRSP - 1
11



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Date Oct. 19, 1967
Pg. # 1

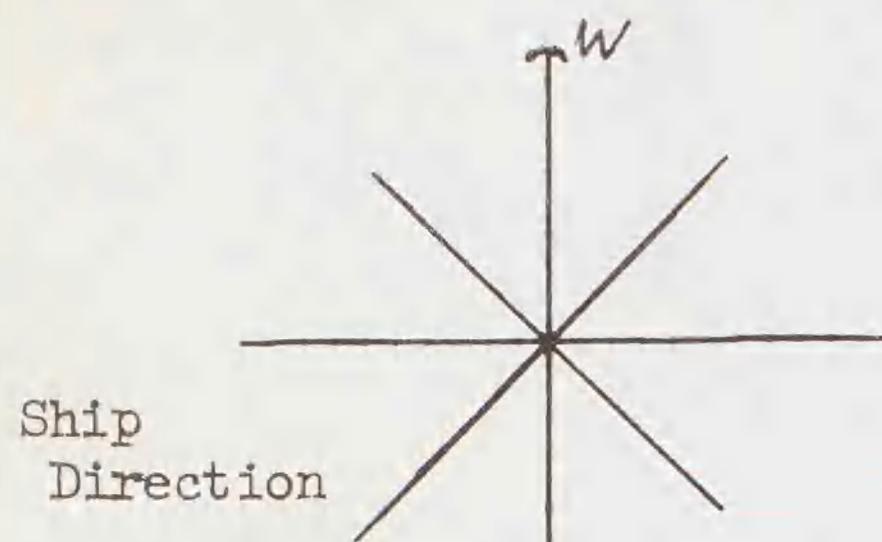
SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

0717							
0735	st. petrel sp	1	E				
0830							
0840	BFA	②					
0910	BFA	②					
0930	BFA	③					
55	BFA	④					
56	Jaeger sp.	1					
1017	Pom. Jaeger	⑤					
29	IV. Phalarope	1	S				
45	Pom. Jaeger	1	ee				
1100		a					
22	Pom. Jaeger						
25	SKUA	1	S				
33	Pom. Jaeger	1	ee				
1155	Pom. Jaeger	1	E				
1258	Jaeger sp	1	ee				
1330	Jaeger sp	1	W				
1430	Herring Gull	1	ee				
1520							
25	Pom. Jaeger	1	5	3			
36	Jaeger?	1	5	3			
1600	P. Phal	1	ee				
31	Taeger sp	1	ee				
50	Shear/Pet	3	ee				
53	BFA	①	ee				
55	Phalarope sp	1	ee				
1701	Herring Gull	1	ee				
07	Pom. Jaeger	1	5ee				
16	Jaeger sp	⑤	5				
1750	BFA	③	ee				
1800	STORM PET sp	1	ee				
1804	WRSP (Leach)	1	ee				
1830							

SUNSET CLOSED 35

JSP - 6
H Gull - 2
Pom - 3
R Phal - 1
S/P - 1
PEAC SP - 1
STORM - 1
WRSP - 1



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

3

SPECIMEN
or

Date Oct. 20 1967
Pg. # 1

TIME SPECIES # DIR. BAND NO. REMARKS

0802	Leach Petrel	2	ee	Sunrise - begin obs. - Low stratus overcast - Wind northerly 20 knots - NW swells observation from the flying bridge Together - identified by white rump
0807	BFA	①	ee	all dark - following
0837	BFA	②	ee	Following
0852	BFA	③	ee	Following (now sitting together)
1000	BFA	③	ee	Skull 3 - 1 with clean cut white rump
1135	BFA	④	ee	Following
1205	St. Pet.	1	SW	Did not see white rump - so and very small -
1214	BFA	⑤	ee	Possibly least Petrel
45	"	⑥	ee	Dumped Gullbone - on H2O
47	St. Pet.	7	ee	Following
52	WRSP?	1	ee	
1314	Jaeger SP	1	ee	
1417	WRSP	1	SE	
1537	Jaeger SP	1	ee	
1602	Leach's SP	1	S	
1608	BFA	⑥	ee	Alt 6 dh 1?
1614	GOLDFULV.	1	ee	calling winter plum circled ship
1620	Starling	1	ee	Landed on ship for 3 mins then left heading south -
1656	M. Dove	1	ee	Brown, mottled below - immature circling ship, occasionally landing - collected about 1715
1847				Sunset.

ST PET - 2

WRSP - 2

JSB - 2

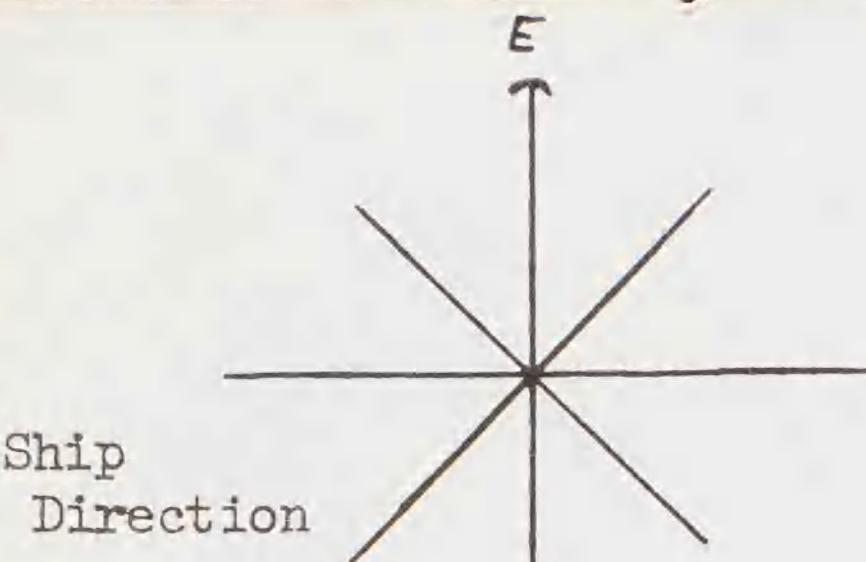
LEACH - 1

GOLD - 1

STARL - 1

M Dov - 1

10



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

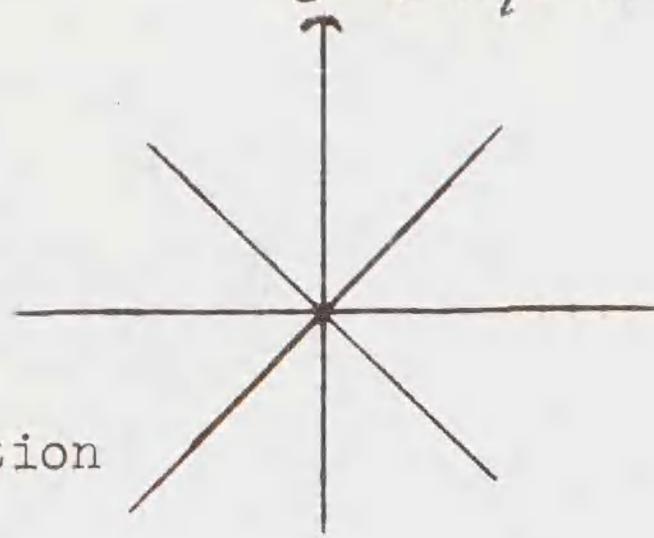
OBSERVERS:

Date 21 Oct 1967
Pg. # 1

SPECIMEN
or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0725					SUNRISE BEG IN OBS. FROM BRIDGE
0730	BFA	①	ee		dh following OVERCAST
0800	STARLING	1	ee		flying about landing on mate shot went overboard
0925	BFA	②	ee		alt 1 dh following
1007	LEACH SP	1	ee		WRSP
1032	" "	1	S		"
1116	Audubon Warb.	1	ee		flew near bridge, but not seen to land. Disappeared to stern.
1140	BFA	④	ee		Following - 1 clean cut narrow white rump band + clear face stripe
1235	Tree Sparrow Flock SP.	1	ee		1 smudgy white rump, fairly narrow, 2 all dark.
1310	Leach's SP	1	ee		on board shot went overboard (white-crowned Sparrow imm?)
1332	ST PT.	1	ee		
1355	WRSP	2	ee		
1405	Tree or Violet Gray Swallow	1	ee		Crochris 54-12
1554	BFA	③	ee		1 wh rump, 1 faint white markings, 1 dark.
1630	BFA	⑤	ee		1 wh rump, 2 dark, 1 faint white, 1?
1810	BFA	④	e		Damaged Gullage
32	Passerine Audubon Warbler	1	ee		SPARROW AS WARRIOR. Circling ship
36					Sunset.
M 1840	Porpoise	3			Reported by bridge lookout 32-27 122-20
					0725-0902 16m. ④
					0903 - 1636 92m. ⑤
					LSP-3
					AUD-b-2
					SPARROW-1
					SPR-7 - 1
					WRSP - 2
					SWALLOW - 1
					SI-MNH-958-e
					Rev. 5-66

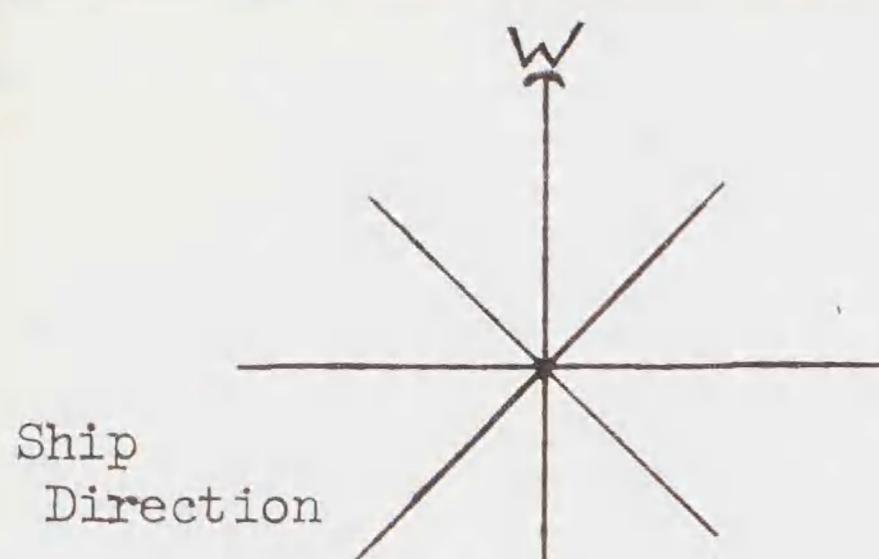
S - change to W 0930

Ship
Direction

OBSERVERS:

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - ESPECIMEN
orDate Oct. 22, 1967
Pg. # 1

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0713					
0725					Begin Observations. Heavy overcast, light drizzle - Winds NW 20 knots, sea light choppy. Fog & mist
0930					CC to 270° THRU OAT DAY
1107	BFA	①			White rump.
1239	WRSP	1	ee		In Rain
1306	DRSP	1	ee		Seal - 31-42 121-40
1347	BFA	①	ee		Possibly Sooty Pet. In Rain
1404	WRSP	1	ee		Following ship. Dark rump
1420	STORM PET	1	ee		In light rain Learch type rump not seen
1430	BFA	②	ee		sh. following
1550	STORM PET	1	ee		Learch type rump not seen
1617	" "	1	ee		" " " "
1745	WRSP	1	SE		edge of light rain shower
1836					Sunset - close obs
					0725 - 55
					126
					WRSP - 3
					DRSP - 1
					LSP - 3
					7



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

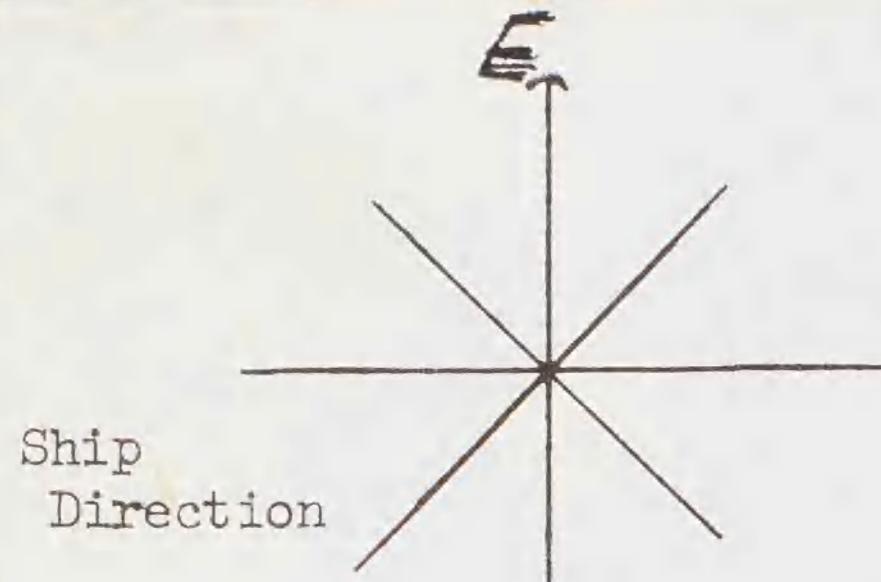
SPECIMEN
or

Date 23 Oct 1967
Pg. # 1

TIME SPECIES # DIR. BAND NO. REMARKS

0727					Sunrise - begin observation - Heavy overcast. Wind NE 20 knts Obs. from flying bridge.
0730	BFA	⑤			following
0930	BFA	⑤			still 5: 1 dark, 1 bright white, 2 indistinct white, 1?
1000	BFA	⑥			
1458	WRSP	1	ee		
1500					
1545					cc to S
1635	LEACH S.P.	4	S		Move obs to helo deck. Wind slackening, ^{to 15 knts} and now 2 pr.?, 3 at least w/ white rump ^{from astern} Re
1740	BFA	④	ee		2 light, 2 dh 1645 - Rain shower - light - shift obs back Close obs - sunset
1846					

OKC 084



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

SPECIMEN

or

Date Oct. 24, 1967
Pg. # 1

TIME SPECIES # DIR. BAND NO. REMARKS

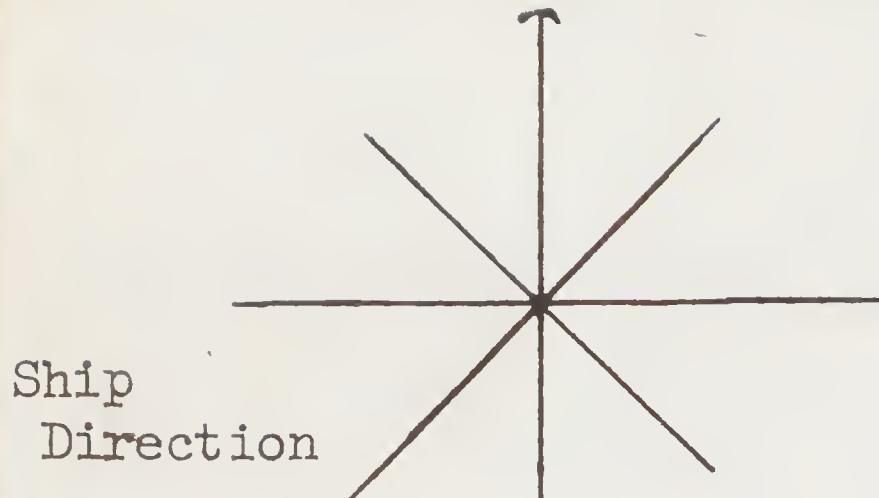
0723				sunrise - Partly cloudy - wind NE 12 Kts - Obs from bridge due to wind
0730	BFA	(4)		1 narrow white rump band, 3 dark
0732	Sooty shear	1	S	rel. 2
0745	BFA	(5)	S	5 th coming in from way, asterix
0752	BFA	(7)		garbage just dumped - 6 sat, 1 flying - 3 wh, 3 dark, 1?
0758				0758 - 4 following
0801				0801 - 5 - "
0805				0805 - 6 - " 2 dark, 1 mottled, 3 white
0803	shearwater sp	1	S	Not sooty - larger, more gliding - fast - distant
0830-0900				Ship stopped for engine repair.
1120	BFA	(5)		2 white, 3 sitting
1135	BFA	(6)		5 sitting in tight group
1204	Leach's SP	2	ee	
1512	WRSP	1	E	on H ₂ O flushed to E
20	Leach's SP	1		forked tail & dividing line obscured.
55	Sooty/Slb	1	E	
56	WRSP	1	S	forked tail, dividing line in view.
1602	"	1	E	
1715	"	1	E	
25	Leach's SP	2	E	
1735	" "	1	ee	boobie ship - very close
1745	WATER PIPIT	1	ee	white rump
1805	S / 8b.	1	S	landed on deck several times, calling
1807	LEACH STORM PET	1	S	distant 123409 rel. 3
1822	" " "	1	ee	white rump 123411 rel. 3
1824	" " "	1	ee	" " " "
1831				SUNSET CLOSE OBS.
		(8)		
			55 - 1	
			SHSP - 1	
			Leachsp - 3	
			WASP - 3	
			S/8b - 1	
		(9)		
			WRSP - 1	
			LSP - 6	
			WAT.R - 1	
			S/8b - 1	
				SI-MNH-958-
				96
				Rev. 5-66

55 - 1

$\delta R_{SP} = 1$

SI-MNH-958-e

Rev. 5-66



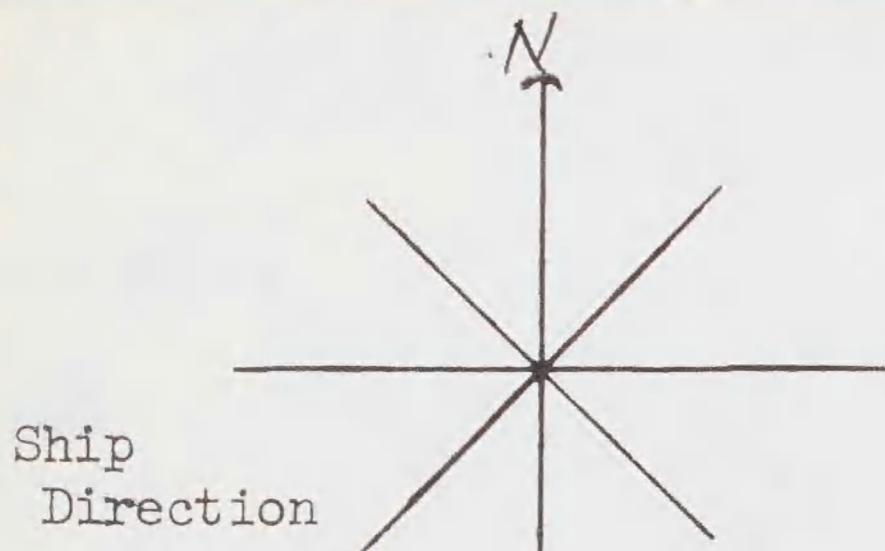
SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

SPECIMEN NOCT GRID
or

OBSERVERS:

Date 17-18 Oct 67
Pg. # 1

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0130					BEGIN OBS. CLEAR NW 12 KTS.
0236	BIRDSP	1	NE		PHASE? 0125 BEGIN MOON ECLIPSE
0245					ca. LUNAR TOTAL ECLIPSE PHASE
0345					CLOSE OBS (ca LEAVING TOTAL PHASE)



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

SPECIMEN
or

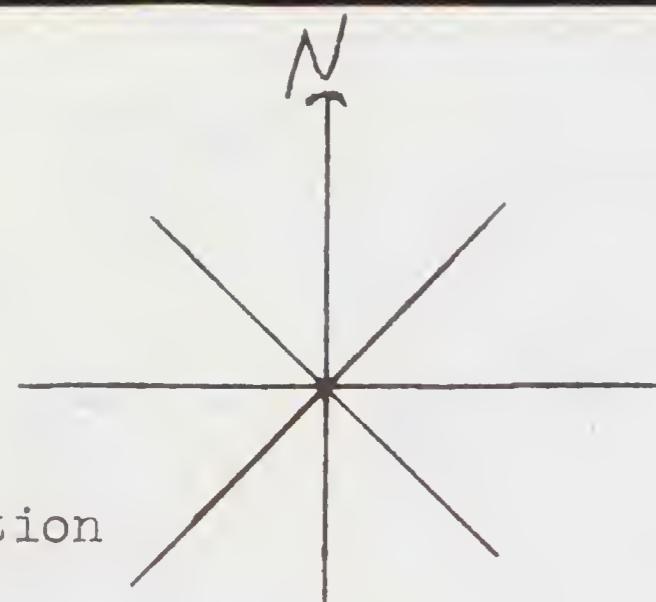
Nocturnal - Grid

OBSERVERS:

Date Oct 24-25, 167
Pg. # 1

TIME SPECIES # DIR. BAND NO. REMARKS

2250	w R SP	1	au	Began
2305	Phal sp	1		calling, not seen
27	Bird (sp?)	1		
47	Passeriform	1		Probably, warbler, not sparrow -
0010	Phalarope	2		calling, not seen
2357	Phal sp	1		seen, not calling
0040	Bird - sp	1		little
0050				close obs



Ship
Direction

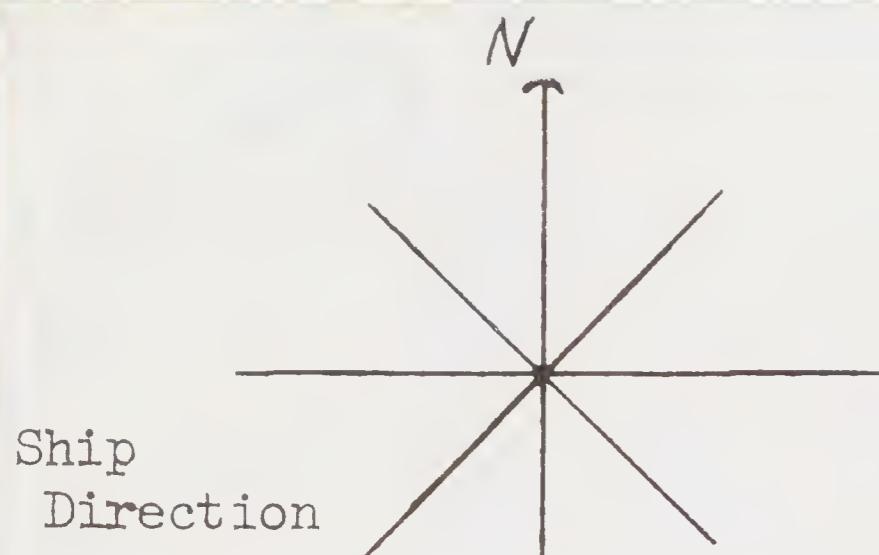
OBSERVERS:

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

SPECIMEN
or

Date 25 Oct. 1967
Pg. # 1

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0722					SUNRISE BEG IN OBS.
0723	BFA	④	ee		following
0735	LONG-TAILED O.	1	ee		arrived from NW followed briefly astern
0740	BFA	⑤	cen		1 lt 1 mottles 3 dark
0753	WRSP	1	ee		
0800	PASSERINE SP	1	eee		flew about ship landed only once
0810	MOURNING P	2	eee		1 col. R. Bonelli
0820	BARN SWALLOW	1	eee		
0835	W. MONTAGNA	1	eee		flying w/ remaining dove landed on deck collected
0848	WRSP	1	eee		
0930	STORM PET	1	eee		rump not seen
0937	RBTB	1	E		imm
0938	GULL SP	1	ee		imm herring/western type
1000	FULMAR	1	ee		dh.
1035	PASSERINE SP.	①	eee		
1038	MOUNTAIN DUCK	1	eee		
1112	BARN SWALLOW	①	eee		probably same as 0820 BIRD
1115	WHITE-CROWNED SP	1	eee		ON DECK probably same as Passerine at 1035 immature
1140	BFA	⑦			
1150	Sooty/SB	1	W		
1153	Arctic Loon	1	NE		Flew directly over deck - aon-br. plum.
1200	BFA	⑦			2 wh, 1 mottled, 4 dark
1225	BFA	③			following merchant ship heading west across our bow - 3/4 mi. At least 3.
1300	Shearwater Fulmar	2	W		Together - Tawny brown (in sun) above, lighter (not white) areas outer half of upper wing surface. Body brown below on one, underwings not seen. Other ^{with} paler body, light underwings with darker edges. Alternately flapped and glided - flapping slower than Sooty. Aerod a little in wind. About body size, or slightly larger.
1310	WRSP	1	eee		
1408	Leach SP.	1	eee		close to ship - divided white rump
1412	Mallard	15	E		All in brown plumage - blue speculum, white trailing edge of wing
1422	Fulmar	1	W		dark
1425	Fulmar	1	W		dark
1434	Fulmar	1	W		dark
	Jaeger-sp	1	W		travelling with Fulmar - not seen to chase
1540	Fulmar	1	W		dark
1630	BFA	⑦			following - 2 wh, 5 dark
	Herring Gull	1			following - immature
1640	WRSP	1	eee		paralleling ship - close - no division in white rump



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

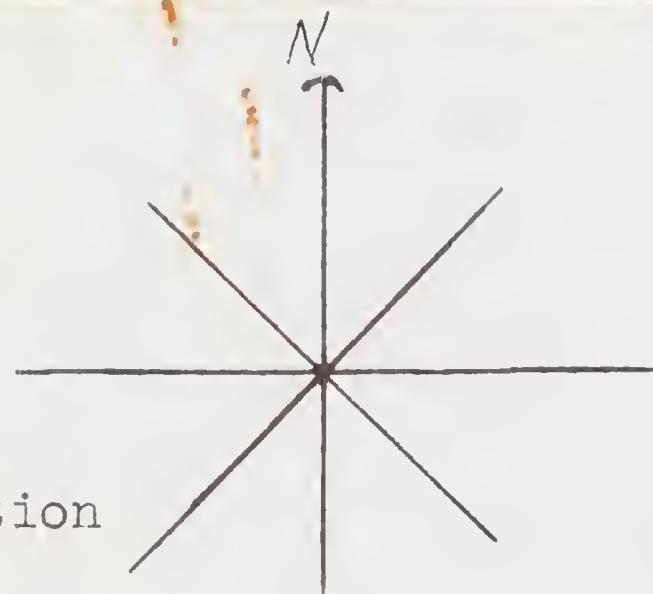
Date Oct 25, 1967
Pg. # 2

SPECIMEN

or

TIME SPECIES # DIR. BAND NO. REMARKS

1700	BFA	(8)			2 wh, 6 dark - Wind now 28 Knots - Headwind.
1723	Jaeger-sp	1	SW		
1820	BFA	(8)			
1822	Heary Gull	(1)	W		Following I am Sunset



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

SPECIMEN
or
Non-GRID

Date Oct 26 1967
Pg. # 1

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0740					Begin obs Wind N 20-25 Knts - Overcast - Very choppy sea
0745	BFA	7			
	Gull-sp	6			
0805	Gull-sp Fulmar	2	lee		
0810	BFA	5			
	Herring Gull	1			ad. +
	Gull sp	12			imm & sub-adult - some Herring, prob some Westerns
0812	skua	1	ee		
0825	West Gull	1			ad
0840	BFA	6			following
	Gull sp	8			
	" sp	5			close obs
0842	Sooty/SB	1	SE?		
0844	Sooty/SB	1	eee		
0845					close obs.
1030+					Begin obs from fantail
	Gull-sp	75 ± 15			
1035	Fulmar	1	eee		
1037	BFA	3			
1052	Fulmar	1			
1056	Passeriform	1	eee		
1100	Gulls	100 ± 15			
	BFA	2			
1105	Fulmar	1	ee		dark
1107	Passerine				Chased briefly by imm Western Gull
1115	Gulls	150 ± 25			Now flying parallel to ship, low over water - prob same as 1056 bird
	BFA	3			
	Gulls	40 ±			Riding bow wave - addition to those astern
1115					4 all dark "probably" storm petrels - reported by LT Smith
					1 possible shorebird
1130					close obs.
1330					Obs. on bridge. Clear, windy
to 1415					About 100 Gulls -
					At least 3 Glaucouswings - immatures
					Numerous Ringbill Gulls - mostly adults
					Westerns & Californias predominating
					1 Brown Pelican
					1 Common Murre
	BFA	7			
	Fulmar	5			
	Sooty/SB	2			
	Skua	1			
	Gulls	200 ± 25			
	Murre	1			
	Pelican	1			

PRELIMINARY REPORT

EASTERN AREA CRUISE #27

16-26 October 1967

including

EASTERN GRID SURVEY #15

Prepared by

Richard D. Chandler (Grid)

and

Robert L. Pyle (Non-Grid)

Eastern Area Cruise #27
16-26 October 1967
including
Eastern Grid Survey #15

Cruise Itinerary: 16 October 0800 - Depart Alameda
17 October 0300 - Enter Grid at Point "Ash"
25 October 2115 - Depart Grid at 35°00' N, 122°38' W
26 October 1800 - Arrive San Francisco

Survey Personnel: Richard Chandler (Biologist-in-Charge)
Robert L. Pyle
Thomas J. Lewis

Methods

Diurnal observations were held from the helicopter deck on the 16th through 18th. The watch was moved to the lee wing of the bridge from the 19th onward due chiefly to strong winds. Two periods of nocturnal watch were held at the searchlight on the port (lee) quarterdeck. The skiff was used for 1-1/2 hours on 17 October, but collecting conditions were not favorable again during the remainder of the cruise. No birds were secured from the skiff, but several errant landbirds were shot as they rested on the deck. Bathythermograph soundings were made at 2-hour intervals from 0400-2000 and at 2400 while in the Grid area. The BT instrument was lost overboard on 25 October at 2345. Other methods and procedures followed those established on previous cruises.

Cruise Track (See Figure #1)

The two non-Grid legs between San Francisco and the Grid are over essentially the same area and save for the influence of weather are roughly comparable. (See non-Grid discussion.) The nominal Grid track was covered, with little deviation from Point "Ash" to a point about 70 miles west of Point Oak. At this point, sunset of the 24th, it was prudent to turn north in order to make best use of the diurnal hours in the two sections "T" and "W" which needed the additional coverage. The 900 diurnal Grid miles were divided among the nine sections fairly equally (average deviation from 100 miles = about 11 miles; see Table #2).

Excellent cooperation was received from Captain Keiser, the deck force, weather personnel, quartermasters, and all concerned with the operation.

Conditions

During most of the survey period a moderate high pressure system to the west of the Grid and a trough of low pressure over the southern California area produced a gradient that resulted in moderately strong (20+ Kt.) northwest winds. Seas and winds were low on the 17th before the

western high had built up. By the 19th the gradient system was bringing in increased low cloudiness and winds. A thick fog bank in the forenoon of the 17th necessitated securing observations for two hours. Cold fog and mist patches were encountered irregularly during most of the survey, notably on the 22nd. Weather moderated on the 23rd as we moved westwardly into the amicably strengthening high. The high weakened on the 24th as a deepening low in the Gulf of Alaska began to send weather down the coast. The cloud deck deepened and northerly winds built up continually, reaching 25-30+ Kts. by the 26th.

In general the moderate to strong winds and seas made for less than average observing conditions, but for the most part I feel the biasing effect probably amounts to less than 10-15 percent reduction in observability over the last five surveys.

Nocturnal conditions were very poor. A full moon on the 17th-18th continued to shine through broken skies for five nights. An eclipse and concurrent nocturnal observations began at 0125 on the 18th. During the hour preceding the total phase of the eclipse no birds were recorded. A single unidentified bird was logged just about at the beginning of the dark phase. No further birds were recorded during an hour of eclipsed darkness. Deep cloud layers the night of 24-25 October blotted out an already waning moon and eight birds were logged during two hours of watch. No other attempts were made to hold night watches.

Broad slick areas were found, as in previous surveys, around 35° N, 123° W. A wide variety of surface and subsurface life was evident from the skiff on that day. Aside from this fairly "cluttered" area in the northeast little else was noted in the rest of the Grid. A few floating logs and various pieces of debris were noted in the western central areas. BT data and previous observations indicate that this area (roughly, sections "U & X") is a relatively stagnant region, often barren of birds and usually with a good deal of flotsam; logs, planking, etc.

Collections

Two Mourning Doves and one Meadowlark were collected in the Grid, and one Meadowlark was collected outside the Grid. One serum sample was obtained from the Meadowlark outside the Grid, but none were obtained in the Grid. No mammal or other collections were obtained.

Eastern Grid Survey #15

Over 900 miles and 99.2 hours of diurnal observations, 187 birds of 24 species were recorded. An additional nine birds of at least three species were recorded over 40 miles of nocturnal watch. Fourteen sightings of marine mammals were made.

Highlights

- 1) Overall linear density -- .208 -- easily the lowest yet recorded for one survey.
- 2) Virtual disappearance of fall migrants, i.e., Arctic Tern, Sooty Shearwater, Leach's Storm Petrel.
- 3) Early hints of the "winter populations" arriving, i.e., Fulmar, Herring Gull, Red-tailed Tropicbird.
- 4) Continued occurrence of unusual land and shorebird vagrants, including eight new Grid species: Arctic Loon, Mallard, Yellowlegs sp., Water Pipit, Barn Swallow, Starling, White-crowned Sparrow, Audubon's Shearwater.

A special appendix summarizing the birds recorded for E.G.S. #1-15 by the higher taxonomic categories, is included here as Tables 3 and 4.

General

Again the overall pattern of distribution within the Grid finds the highest density in the northeast and the lowest density in the opposite corner:

.102	.615	.330
.130	.101	.344
.047	.107	.131

Birds per linear mile

The sectional distribution of number of species shows a similar pattern:

6	7	7
5	4	13
1	2	3

Number of species observed in each section.

Phalaropes and Storm Petrels together account for about 55 percent of the total birds observed. Another 13 percent is added by Jaegers. The remaining one-third presents rather a menagerie of odds and ends, loosely categorized as follows:

Percent of Total

"Respectable" pelagic seabirds (Shear/Pets, Alcids, Skua, Tropicbirds)	11
Puddle Ducks	8
Passerines (Tweety Birds) (6 species)	6
"Marginal" Pelagic seabirds (Loon, Herring Gull)	4
Doves	2
Accidental shorebirds	2
Owls (1)	1

The general situation found in this Grid, chiefly the overall paucity of birds, is apparently the transitory state that occurs: 1) After the typical migrant species, Leach's Storm Petrel, Terns, Phalaropes(?), Shear/Pets., etc. have passed through and are now generally to the south of the Grid area, and 2) Before the typical winter residents, Gulls, Alcids, Fulmars, Kittiwakes, etc., have arrived from the north. The duration of this lull is probably fairly short, as vanguard Fulmars and Gulls are presently appearing. The next two surveys I suspect will show an overall increase.

Sections, R, S, T. U. V, W, X, Y, Z refer respectively to 1, 2, 3, 4, 5, 6, 7, 8, 9; and NW, N-Center, NE, Center-West, Center-Center, Center-East, SW, S-Center, SE.

Nine division shorthand notations used here are similar to thos discussed in the report for E.G.S. #10.

SPECIES ACCOUNTS - GRID

Black-footed Albatross <u>Diomedea nigripes</u>	# Obs.	43
	Avg. # Day	4.8
See Figure #2	Median (of 9 days)	6
See also report for EGS #13	High max. day count	8
	Low max. day count	1

RUMP COLOR (Sample Size = 37)			
	Sharp White	Mottled	Dark
#	10	4	23
%	27	11	62

After having decreased through four surveys, from July to mid-September, an increase seems to be underway at present. The mean # of birds/day per survey reached a low of 3.1 in mid-September then rose to 5.4 in early October and dropped slightly to 4.8 during the present survey. The overall tendency suggests an increase but future cruises will make this more clear. I hypothesized in the EGS #13 report that a decrease in the proportion of white-rumped birds would occur along with the, also hypothesized, overall increase. It is not clear as yet whether or not this is occurring.

(As in the previous two reports all albatross data are handled in the Species Account only and are, for the purposes of the tables, not considered to be birds).

Fulmar <u>Fulmarus glacialis</u>	# Obs.	7
-------------------------------------	--------	---

Seven dark-phase birds were recorded on the last day in the Grid; sections "T" and "W". Six were moving west. These are the first of the season and no doubt will increase.

Sooty Shearwater	# Obs. = 2
Sooty or Slender-billed Shearwater	# Obs. = <u>3</u> 5

0	1	0
---	---	---

0	0	1
---	---	---

0	2	1
---	---	---

seen in each section

Evidently the fall migration is a rather abrupt peak. Grid numbers have dropped by a factor of 20 in two weeks. I would set the dates of maximum exodus at September 6-20. Five birds barely constitute a valid distribution pattern, but what there is suggests an unsurprising clustering in the south.

Leach's Storm Petrel	# Obs. = 53
<u>Oceanodroma leucorhoa</u>	

3	3	3	.034	.033	.029
---	---	---	------	------	------

5	8	6	.059	.062	.059
---	---	---	------	------	------

5	6	14	.047	.072	.114
---	---	----	------	------	------

# Obs. in each section	Birds/Linear Mile/Section
------------------------	---------------------------

The wave of birds that was passing through the center of the Grid area during the last survey (early October) has evidently continued south. That wave, unlike the postbreeding summering populations, was distinctly and highly directive. I feel that those birds were the nominate race (O. l. leucorhoa) from stations to the north as they appeared to be larger and virtually all were conspicuously white-rumped. I believe it is probably this general population that makes up the bulk of the Leach's that spread westward along the low latitudes in the central Pacific. The current density is by far the lowest yet recorded. The birds seen did not appear to be directional and I doubt that many migrant stragglers are still lingering in the Grid area. The birds struck me as being chiefly the smaller small-rump patched birds from more local breeding stations. I suggest that the slight concentration of birds in the southeast corner represents birds from the winter breeding populations of Isle Guadalupe. As the breeding cycle there finishes up I expect this density peak in the southeast to remain, while the overall density increases as postbreeders and young disperse. January and February 1967 data also indicate this pattern.

Problems continue to arise concerning the identification, specific and subspecific, of the Storm Petrels encountered in the Grid. Using the ADP system it is, at times, difficult to describe a sighting, and no standard procedure has yet been adopted. My present thoughts on the Hydrobatids of the Grid are outlined roughly as follows:

Fork-tailed Storm Petrel Oceanodroma furcata

Little problem. The Grid area evidently delimits the usual southern

wintering range. The only identification problem is subspecific and this is best solved down a gun barrel.

Ashy Petrel Oceanodroma homochroa

Still a mystery bird on the Grid. This is the closest breeding Storm Petrel to the Grid (in low numbers, albeit), but it hasn't turned up in Grid collections or even been tentatively seen. I think the non-breeding birds must stay very close to the coast all year round; in such areas as Monterey Bay perhaps. It remains a possibility though, especially around Points Ash or Dogwood perhaps in late summer. Identification, especially from a large ship where the upperwings are often obscured, is difficult, and the possibility, perhaps very remote, of confusion with a Dark-rumped Leach is (for me) the most touchy identification problem among the local Storm Petrels.

Wilson's Storm Petrel Oceanites oceanicus

Just barely even expectable. Identification is not difficult to experienced observers, and is not seriously included among the abbreviation "WRSP" for "White-rumped Storm Petrel."

Least Storm Petrel Halocyptena microsoma

Highly unlikely at any distance from land let alone as far north as the Grid. Not impossible but I would be highly sceptical without the specimen.

Black Storm Petrel Oceanodroma Melania

Erratic, but evidently on the Grid. Can be confused with large nominate Leach's if flight pattern is used as main field mark. Next to Ashy the only other bird that causes specific identification problems with Leach's.

Leach's Storm Petrel Oceanodroma leucorhoa

Taxonomically a mess. Upon carefully glassing a Storm Petrel on the Grid, Fork-tailed, Black, Least, and (by mostly common sense) Ashy can be eliminated quickly. Which leaves only Leach's. Thus far it appears that virtually (but not quite all!) dark-plumaged Storm Petrels are indeed Leach's, but the possibility of the others occurring must not be entirely overlooked. ADP coding is a problem because of rather artificial subspecific nomenclature. In the field any one of the three or four southern forms may appear dark-rumped. The taxonomic problem should not be decided on the bow however and nothing is lost if all Leach's are coded 123409 and their plumage, behavior, size, etc., recorded under remarks for future tabulation in the report. The species reliability code should be left to your judgment or conscience. I would use "0" 95 percent of the time.

Red-billed Tropicbird # Obs. = 2
Phaethon aethereus

An adult was seen in "R" on the 18th. I believe this is the first record in a western section. A nonadult was seen in "W" the more usual area for this species to turn up.

Red-tailed Tropicbird # Obs. = 1
Phaethon rubricauda

An adult, the first bird since mid-April, was flushed from the water in "R".

Mallard # Obs. = 15
Anas platyrhynchos

A single flock, all in brown plumage, were heading east in section "T".

Red Phalarope # Obs. = 10
Phalaropus fulicarius

Northern Phalarope # Obs. = 37
Lobipes lobatus

Phalarope sp. # Obs. = 2

2	44	1
2	0	0
0	0	0

observed in each section

Both species were seen on slicks in the same area where they have been found since July. Of several possible reasons, I can offer only one reasonable explanation for the very low numbers (compared to the spring peak) of Red Phalaropes recorded this fall: They pass to the south far to the west of the Grid area. The presence of Northern Phalaropes on the Grid this survey is as unusual as their only other occurrence in late July.

Black-bellied Plover # Obs. = 1
Squatarola squatarola

A winter-plumaged bird silently circled the ship on 18 October in "R".

Golden Plover # Obs. = 1
Pluvialis dominica

A winter-plumaged bird circled the ship, calling frequently, in section "U".

Yellowlegs sp. # Obs. = 1
Totanus sp.

A bird circled the ship and departed southward. It was not identified as to species.

Skua # Obs. = 1
Catharacta skua

A bird followed the ship briefly in section "T".

Pomarine Jaeger	# Obs. = 9
Jaeger sp.	# Obs. = <u>14</u> 23
0 3 9	
2 0 9	
0 0 0	

Jaegers are the most conspicuous element of the avifauna that still appear to retain a transient-type status. The "coastal-crowding" distribution pattern has been consistently noted for Jaegers. Sixteen birds were recorded on the 19th in "T" and "W".

Gull? sp.	# Obs. = 1
Herring Gull	# Obs. = 5
<u>Larus argentatus</u>	
0 2 1	
0 0 3	
0 0 0	

Birds observed per section

Five immature Herring Gulls were concentrated in the northeastern-most third of the Grid. A poorly seen bird, following far back in the wake, was thought to be a large Gull.

Alcid sp. # Obs. = 2

A pair of small Alcids were flushed in "S".

	<u># Obs.</u>
Mourning Dove	4 (2 coll.)
Long-eared Owl	1
Water Pipit	1
Barn Swallow (imm)	1
Tree/Violet-Green Swallow	1
Starling (imm)	2
Western Meadowlark	1 (coll.)
White-crowned sparrow (imm)	1
Sparrow sp.	1
Audubon's Warbler	2
Passerine sp.	<u>1</u> 16

0	0	0
3	4	8
0	0	1

Observed per section

The absence in the above list of Brown-headed Cowbird is notable. Mourning Doves have been recorded on several recent surveys, peaking in mid-September. Long-eared Owl and Western Meadowlark have each been recorded once previously. The other species are new to the growing list of accidental Grid birds.

GRID MAMMAL SIGHTINGS

<u>Species</u>	<u>No.</u>	<u>Date</u>	<u>Section</u>
<u>Lissodelphis borealis</u>	35	17 October	S
<u>Delphinus?</u>	3	"	S
Porpoise	15 + 3	"	S
<u>Lissodelphis borealis</u>	100+	"	"
Gray Whale	1	"	S
<u>Delphinus</u>	5	"	S
Porpoise	10	"	S
Porpoise	10	"	S
Sperm? Whale	1	"	S
Whale	1	"	S
Whale	2	"	S
<u>Delphinus?</u>	100+	18 October	R
<u>Delphinus?</u>	50+	"	R
Porpoise	3	21 October	V
Seal?	1	22 October	Z

TABLE 1. Daily Summary of Observations, Eastern Grid Survey #15

<u>DIURNAL</u>					
Date	# Miles	# Hours	# Birds	# Species	Linear Dens.
17 Oct.	77	9.6	54	7	0.701
18 Oct.	102	11.2	11	6	0.105
19 Oct.	105	11.2	26	7	0.248
20 Oct.	96	11.4	12	5	0.125
21 Oct.	108	11.2	11	5	0.102
22 Oct.	108	11.2	7	1	0.065
23 Oct.	106	11.3	5	1	0.047
24 Oct.	98	11.1	18	3	0.185
25 Oct.	100	11.0	43	13	0.430
TOTAL	900	99.2	187	24	0.208
Avg./Day	100	11.0	2.1	5.3	
<u>NOCTURNAL</u>					
17-18 Oct.	21	2.3	1	1	-
24-25 Oct.	19	2.0	8	3	-
	40	4.3	9	3	

TABLE 2. Summary of Diurnal Bird Observations by Sections;
Part A - 9-Section Breakdown; Eastern Grid Survey #15, 17-25 October 1967

	(1) R	(2) S	(3) T	(4) U	(5) V					
	# Birds/ Mile	# Birds								
Arctic Loon										
Fulmar			.039	4						
Sooty/Slender Sh.		.011	1							
Misc. Unident. Sher/Pet.										
Storm Petrel	.034	3	.033	3	.029	3	.059	5	.062	8
Red-billed Tropicbird	.011	1								
Red-tailed Tropicbird	.011	1								
Mallard				.146	15					
Red Phalarope	.023	2	.077	7						
Northern Phalarope			.396	36	.010	1				
Phalarope sp.			.011	1						
Black-bellied Plover	.011	1								
Golden Plover					.012	1				
Yellowlegs sp.	.011	1								
Skua				.010	1					
Jaegers			.033	3	.087	9	.024	2		
Gulls			.022	2	.010	1				
Alcid sp.			.022	2						
Mourning Dove					.012	1				
Long-eared Owl										
Water Pipit										
Swallows								.008	1	
Starling					.024	2				
Western Meadowlark										
White-crowned Sparrow										
Sparrow sp.								.008	1	
Audubon's Warbler								.017	2	
Passerine sp.										
Bird sp.			.011	1						
Total	.102	9	.615	56	.330	34	.130	11	.101	12
# Miles		88		91		103		85		119
# Hours		9.6		11.2		10.9		9.9		12.7
# Species		6		7		7		5		4

TABLE 2. Summary of Diurnal Bird Observations by Sections;
Part A - 9-Section Breakdown; Eastern Grid Survey #15, 17-25 October 1967

	(6) W	(7) X	(8) Y	(9) Z	Total
Arctic Loon	.010	1			.001 1
Fulmar	.029	3			.008 7
Sooty/Slender Sh.	.010	1	.023	2	.008 1
Misc. Unident. Sher/Pet.	.010	1	.012	1	.002 2
Storm Petrel	.059	6	.047	5	.072 6
Red-billed Tropicbird	.010	1			.002 2
Red-tailed Tropicbird					.001 1
Mallard					.017 15
Red Phalarope	.010	1			.011 10
Northern Phalarope					.041 37
Phalarope sp.	.010	1			.002 2
Black-bellied Plover					.001 1
Golden Plover					.001 1
Yellowlegs sp.					.001 1
Skua					.001 1
Jaegers	.088	9			.026 23
Gulls	.029	3			.007 6
Alcid sp.					.002 2
Mourning Dove	.029	3			.004 4
Long-eared Owl	.010	1			.001 1
Water Pipit				.008 1	.001 1
Swallows	.010	1			.002 2
Starling					.002 2
Western Meadowlark	.010	1			.001 1
White-crowned Sparrow	.010	1			.001 1
Sparrow sp.					.001 1
Audubon's Warbler					.002 2
Passerine sp.	.010	1			.001 1
Bird sp.				.0	.001 1
Total	.344	35	.047	5	.107 9
# Miles		102		106	84
# Hours		11.3		11.3	9.5
# Species		13		1	2
					3
					24

TABLE 2. Summary of Diurnal Bird Observations by Sections;
 Part B - East-West, and North-South Thirds; Eastern Grid Survey #15,
 17-25 October 1967

	R+S+T North	U+V+W Center	X+Y+Z South	R+U+X West
Arctic Loon		.003	1	
Fulmar	.014	4	.010	3
Sooty/Slender Sh.	.004	1	.003	1
Misc. Unident. Sher/Pet.		.003	1	.003
Storm Petrel	.032	9	.062	19
Red-billed Tropicbird	.004	1	.003	1
Red-tailed Tropicbird	.004	1		.004
Mallard	.053	15		
Red Phalarope	.032	9	.003	1
Northern Phalarope	.131	37		
Phalarope sp.	.004	1	.003	1
Black-bellied Plover	.004	1		.004
Golden Plover			.003	1
Yellowlegs sp.	.004	1		.004
Skua	.004	1		
Jaegers	.042	12	.036	11
Gulls	.011	3	.010	3
Alcid sp.	.007	2		
Mourning Dove			.013	4
Long-eared Owl			.003	1
Water Pipit				.003
Swallows			.007	2
Starling			.007	2
Western Meadowlark			.003	1
White-crowned Sparrow			.003	1
Sparrow sp.			.003	1
Audubon's Warbler			.007	2
Passerine sp.			.003	1
Bird sp.	.004	1		
Total	.351	99	.190	58
# Miles		282		306
# Hours		31.7		33.9
# Species		14		16
				3
				10.

TABLE 2. Summary of Diurnal Bird Observations by Sections;
 Part B - East-West, and North-South Thirds; Eastern Grid Survey #15,
 17-25 October 1967

	S+V+Y Center	T+W+Z East	Date Obs.*	% Total	# No.	Total Collected
Arctic Loon		.003	1	25 Oct.	0.5	1
Fulmar		.021	7	25 Oct.	3.7	7
Sooty/Slender Sh.	.010	3	.006	2	2.7	5
Misc. Unident. Sher/Pet.	.003	1	.003	1	1.1	2
Storm Petrel	.058	17	.070	23	28.4	53
Red-billed Tropicbird			.003	1	1.1	2
Red-tailed Tropicbird				18 Oct.	0.5	1
Mallard			.046	15	25 Oct.	8.0
Red Phalarope	.024	7	.003	1	5.4	10
Northern Phalarope	.123	36	.003	1	19.8	37
Phalarope sp.	.003	1	.003	1	1.1	2
Black-bellied Plover				18 Oct.	0.5	1
Golden Plover				20 Oct.	0.5	1
Yellowlegs sp.				18 Oct.	0.5	1
Skua			.003	1	19 Oct.	0.5
Jaegers	.010	3	.055	18	12.3	23
Gulls	.007	2	.012	4	3.2	6
Alcid sp.	.007	2			1.1	2
Mourning Dove			.009	3	2.1	4
Long-eared Owl			.003	1	25 Oct.	0.5
Water Pipit			.003	1	24 Oct.	0.5
Swallows	.003	1	.003	1	1.1	2
Starling					1.1	2
Western Meadowlark			.003	1	25 Oct.	0.5
White-crowned Sparrow			.003	1	25 Oct.	0.5
Sparrow sp.	.003	1		21 Oct.	0.5	1
Audubon's Warbler	.007	2		21 Oct.	1.1	2
Passerine sp.			.003	1	25 Oct.	0.5
Bird sp.	.003	1		18 Oct.	0.5	1
Total	.262	77	.260	85	100	187
# Miles		294		327		900
# Hours		33.4		35.0		992
# Species		10		17		24

* When all sightings are in one day.

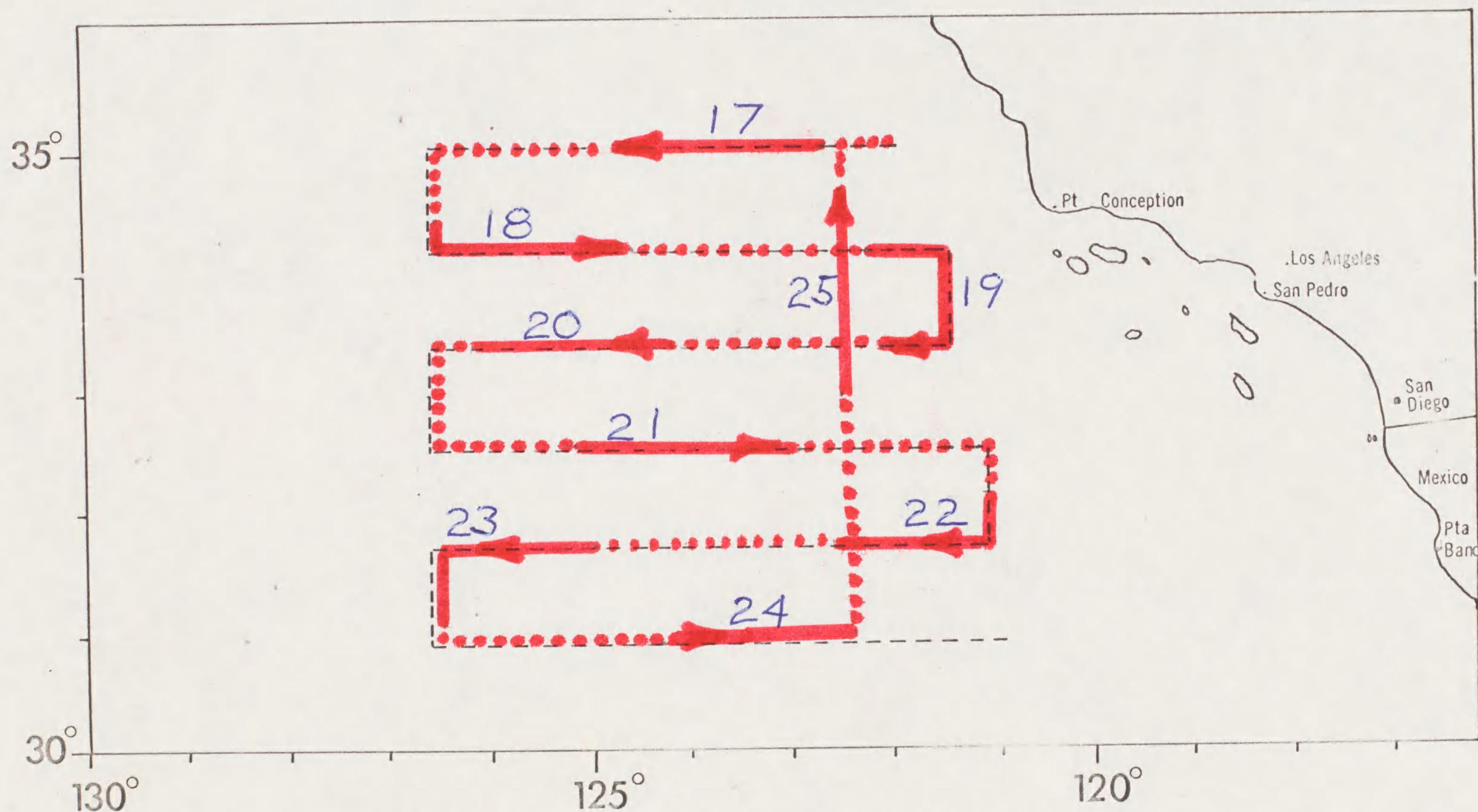
TABLE 3. Composition of E.G.S. #1-15 by Higher Taxa.

	# Observed	% Total
<u>"SEABIRDS"</u>		
Gaviiformes - Loons	8881	98.96
Gaviidae - Loons	1	0.01
Procelariiformes - Tube Noses	3907	43.54
Diomedeidae - Albatrosses	662	7.38
Procelariidae	901	10.04
<i>Puffinus</i> - Shearwaters	356	3.97
<i>Pterodroma</i> - Gadfly Petrels	140	1.56
<i>Fulmarus</i> - Fulmar	352	3.92
Hydrobatidae - Storm Petrels	2344	26.12
Pelecaniformes - Toti Palmates	25	0.28
Phaethontidae - Tropicbirds	22	0.25
Pelicanidae - Pelicans	3	0.03
Anseriformes - Water Fowl	84	0.94
Anatidae - Ducks, Geese, and Swans	84	0.94
Charadriiformes	4757	53.01
Charadriidae - Plovers and Turnstones	27	0.30
Scolopacidae - Sandpipers	14	0.16
Phalaropodidae - Phalaropes	2621	29.21
Stercorariidae - Skuas and Jaegers	211	2.35
Laridae - Gulls and Terns	1611	17.95
Larinae - Gulls	1461	16.28
Sterninae - Terns	150	1.67
Alcidae - Alcids	244	2.72
<u>"LANDBIRDS"</u>		
Columbiformes - Pigeons and Allies	93	1.04
Columbidae - Pigeons and Doves	42	0.47
Strigiformes - Owls	42	0.47
Strigidae - Typical Owls	2	0.02
Caprimulgiformes - Goatsuckers and Allies	2	0.02
Caprimulgidae - Goatsuckers	1	0.01
Apodiformes - Swifts and Hummingbirds	1	0.01
Trochilidae - Hummingbirds	1	0.01
Passeriformes - Perching Birds	45	0.50
Tyrannidae - Tyrant Flycatchers	1	0.01
Hirundinidae - Swallows	2	0.02
Motacillidae - Pipits	1	0.01
Sturnidae - Starlings	2	0.02
Vireonidae - Vireos	1	0.01
Parulidae - Wood Warblers	5	0.06
Icteridae - Blackbirds	18	0.21
Fringillidae - Sparrow, Finches, etc.	6	0.07

TABLE 4. Taxonomic Categories Contributing More Than 1 Percent to Total E.G.S. to Date (1-15)

	<u>Percent</u>
<u>ORDERS</u>	
Charadriiformes	53.0
Procellariiformes	43.5
All other orders	<u>3.5</u>
	100.0
<u>FAMILIES</u>	
Phalaropodidae	29.2
Hydrobatidae	26.1
Laridae	18.0
Procellariidae	10.0
Diomedeidae	7.4
Alcidae	2.7
Stercorariidae	2.4
All other families	<u>4.2</u>
	100.0
<u>SPECIES</u>	
Red Phalarope	27.0
Leach's Storm Petrel	25.7
Herring Gull	7.7
Black-legged Kittiwake	7.3
Black-footed Albatross	7.1
Fulmar	3.9
Sooty Shearwater	2.8
Jaeger	2.3
<u>Sterna</u>	1.7
All other identified birds	8.1
All other unidentified birds	<u>6.5</u>
	100.0

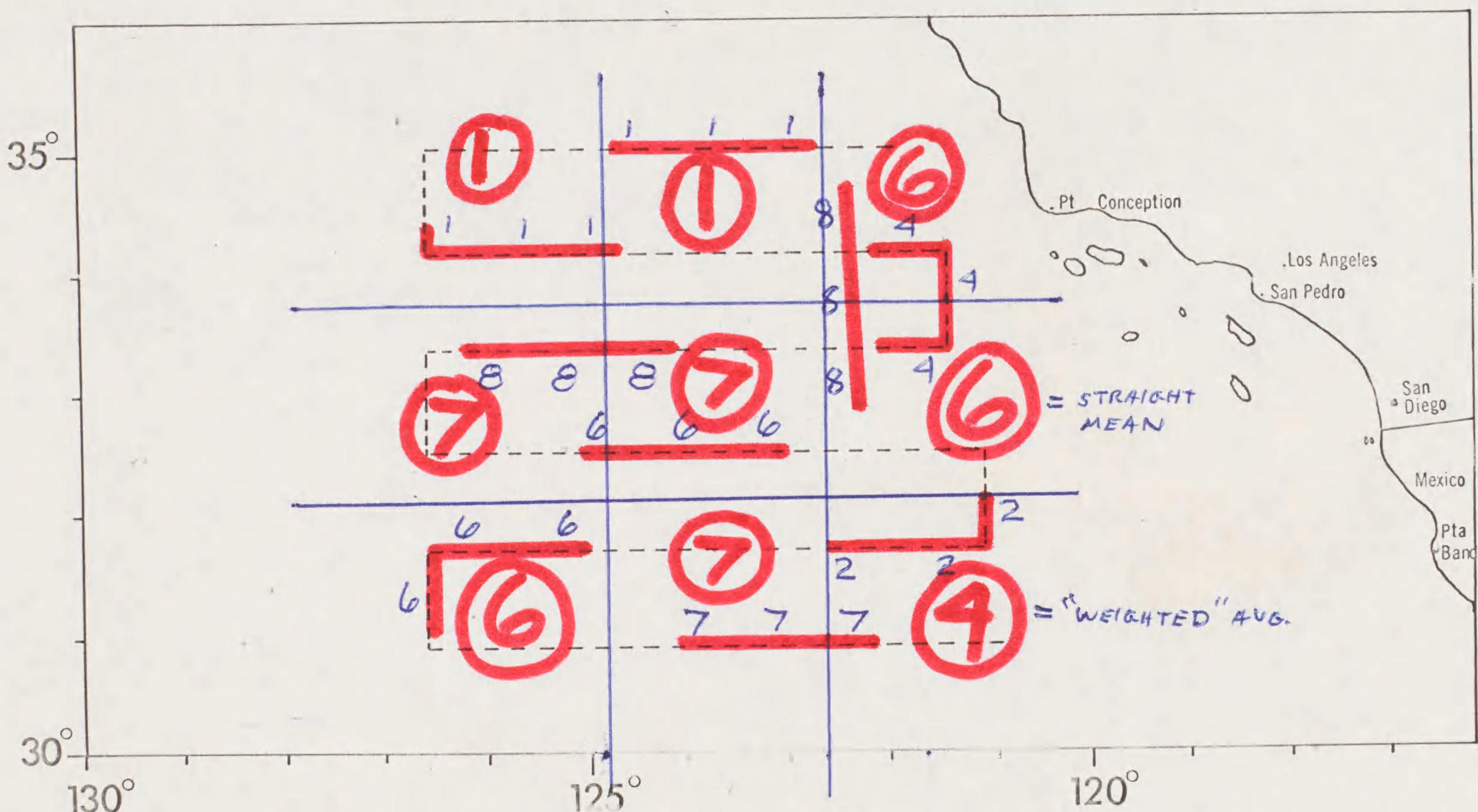
FIG. #1 EASTERN GRID CRUISE TRACK



EASTERN AREA CRUISE NO. _____
EASTERN GRID SURVEY NO. 15
DATES 17-25 OCT. 1967

— NORMAL GRID TRACK
— ACTUAL CRUISE TRACK
(diurnal)
— ACTUAL CRUISE TRACK
(nocturnal)

FIG. #2 EXPLANATION OF MANIPULATION OF ALBATROSS DATA, E.G.S #15
 SEE SPECIES ACCOUNT
 ALSO SEE REPORT FOR E.G.S #13
 EASTERN GRID CRUISE TRACK



EASTERN AREA CRUISE NO. 27
 EASTERN GRID SURVEY NO. 15
 DATES 17-25 OCT. '67

MAX DAILY COUNT
 8 8 8 — NORMAL GRID TRACK
 — ACTUAL CRUISE TRACK (diurnal)
 — ACTUAL CRUISE TRACK (nocturnal)

Non-Grid Observations

R. L. Pyle

Diurnal observations were conducted en route from San Francisco to point Ash on October 16, and again October 26 returning to San Francisco along essentially the same track. Virtually calm winds and smooth sea on the 16th were very favorable for observing birds at a distance and on the water. However, strong headwinds and choppy sea on the 26th, particularly in the morning, severely hampered observation of most species, but probably were a significant reason why albatross and gulls followed the ship closely in large numbers on the 26th but not on the 16th.

On the 16th observations were recorded continuously for six hours up to sunset. On the 26th recorded observations were limited to one hour in the early morning, one hour in midmorning, and three-fourths hour in the early afternoon, because of the strong winds and preoccupation of observers with Grid data analysis and other end-of-cruise chores. Occasional spot observations between these periods confirmed the general picture, but were not officially logged.

Because of differences in weather conditions and observing time, far more birds other than gulls were recorded on the 16th (195 gulls, 256 others) than on the 26th (200⁺ gulls, 18 others). Table 4 summarizes the non-Grid observations. Comparisons between the two dates are discussed in the species accounts which follow.

Black-footed Albatross

None recorded on southbound leg. On northbound leg, seven were following when observations began in early morning, three were still following during the midmorning observation period, and none were recorded in the afternoon. Records of previous trips between San Francisco and the Grid should be checked for the possibility that albatross tend to be recorded farther north when following northbound ships than when following southbound ships.

Shearwaters and Petrels

Recorded in good numbers on the 16th but virtually absent on the 26th. Beside winds and observing time, this decrease probably also reflects the disappearance of fall migrating birds, as was experienced in the Grid. Of the 32 Pink-footed Shearwaters recorded on the 16th, 28 were in one group sitting on the water. On the 26th, four probable storm petrels together were reported by the bridge officer, but not officially recorded.

Fulmar

The single bird on the 16th was on the water, and may have been in abnormal condition as it did not flush but only fluttered aside to avoid

the closely approaching ship. Numbers on the 26th represent the first influx of the wintering population.

Phalaropes

Eighty-seven on the 16th vs. none on the 26th probably resulted largely from differences in weather and observing time, but may also reflect the passing migration.

Gulls

Numbers recorded on the 16th represent many individuals and groups sighted up to considerable distances on each side of the ship, some travelling with the ship, some not, but very few if any following closely behind. Numbers for the 26th represent maximum estimates of the large flock which followed steadily at one to two shiplengths astern, with a smaller flock over the bow. Most of the other gulls sighted on the 26th had either just left one of these flocks, or were en route to join them. The flock began in early morning with six gulls joining seven albatross in hovering over garbage just dumped. Numbers gradually grew to a maximum in late morning of 150± in the stern flock and 40± at the bow. The bow flock was directly over the port railing just behind the bow, riding the updraft from the strong wind coming from about 10 degrees off the port bow. It was impossible to keep track of individuals joining and departing from these flocks, so that total gulls in the area during the day were certainly much greater than the figures given.

Species composition of gulls on the two days was significantly different. Westerns, first, and Californias, second, comprised the overwhelming majority on both days. On the 16th other species recorded were Bonaparte, Sabine, and Heerman, all smaller gulls which (except possibly for Heerman) seldom follow ships. On the 26th other species recorded were Glaucous-winged, Herring, and Ring-billed, all of them strictly winter visitants with strong ship-following tendencies. One or two Glaucous-wingeds were seen on the 16th near Golden Gate Bridge before official observations began. On both dates well over half of the gulls were in immature or subadult plumage.

Alcids

Forty-three on the 16th vs. one on the 26th probably resulted largely from differences in weather and observing time. Most of the 27 recorded as "small alcids" were probably Cassin Auklets.

TABLE 4. Summary of Non-Grid Observations, Eastern Area Cruise No. 25

	<u>October 16</u>	<u>October 26</u>	
Black-footed Albatross	0	7	
Fulmar	1	5	
Pink-footed Shearwater	32	0	
New Zealand Shearwater	5	0	
Sooty Shearwater	28	2	
Shearwater sp.	7	0	
Storm Petrel sp.	6	0	
Brown Pelican	12	1	
Pelagic Cormorant	1	0	
Cormorant sp.	2	0	
Red Phalarope	4	0	
Northern Phalarope	13	0	
Phalarope sp.	70	0	
Skua	1	1	
Pomarine Jaeger	1	0	
Jaeger sp.	25	0	
Glaucous-winged Gull	0	3+	
Western Gull	24	100+	
Herring Gull	0	5+	
California Gull	52	75+	
Ring-billed Gull	0	20+	
Heerman Gull	1	0	
Bonaparte Gull	2	0	
Sabine Gull	9	0	
Gull sp.	105	0	
Common Murre	3	1	
Murrelet sp.	2	0	
Cassin Auklet	4	0	
Small Alcid sp.	27	0	
Medium alcid sp.	1	0	
Alcid sp.	6	0	
Waterbird sp.	1	0	
Mourning Dove	1	0	
Western Meadowlark	1	0	
Audubon Warbler	1	0	
Landbird sp.	1	1	
 Total Birds	449	221+	
Sealions and/or seals	18	0	
Porpoises	19	0	
Whale	1	0	
Observing period	1240 - 1840	0740 - 0845 1030 - 1130 1330 - 1415	36°35' to 36°44' 37°00' to 37°04' 37°25' to 37°31'
Latitude span	37°26' to 36°30'		

Note: Two Common Egrets and one or two flocks of flying Surf Scoters were seen on the 16th outside Golden Gate before official observations began.

E.A.C. CRUISE DATA

SHIP U.S. MINE, 1964-65 DATE 10/26 67

	TIME	LAT.	LONG.
SUNRISE	0730	36°33' N	122°37'
SUNSET			

TOTAL MILES TRAVELED SUNRISE TO SUNSET

POSITION

TIME	LAT.	LONG.
0400	36°00'N	122°34'W
0600	36°20'N	122°37'W
0800	36°38'N	122°37'W
1000	36°55'N	122°39'W
1200	37°13'N	122°40'W
1400	37°29'N	122°41'W
1600	37°45'N	122°41'W
1800		
2000		
2400		

COURSE OR SPEED CHANGE

FROM TO (AT) LAT. LONG.

E.A.C. CRUISE DATA

SHIP 18. Hull YAC-80DATE 25 OCTOBER

	TIME	LAT.	LONG.
SUNRISE	0722	32° 54' N	122° 32' W
SUNSET	1824	34° 33' N	122° 37' W

TOTAL MILES TRAVELED SUNRISE TO SUNSET 99

POSITION

TIME	LAT.	LONG.	
0400	32° 23' N	122° 30' W	32 50
0600	32° 41' N	122° 31' W	33 08
0800	32° 59' N	122° 33' W	33 25
1000	33° 17' N	122° 35' W	33 43
1200	33° 34' N	122° 36' W	34 01
1400	33° 52' N	122° 39' W	34 20
1600	34° 10' N	122° 37' W	34 38
1800	34° 29' N	122° 37' W	
2000	34° 47' N	122° 37' W	
2400	35° 25' N	122° 37'	

COURSE OR SPEED CHANGE

FROM	TO	(AT)	LAT.	LONG.
------	----	------	------	-------

E.A.C. CRUISE DATA

SHIP A.S. Wall M.V. DATE 24 October 1967

	TIME	LAT.	LONG.
SUNRISE	0723	30°49'N	124°16'W
SUNSET	1830	30°55'N	122°22'W

TOTAL MILES TRAVELED SUNRISE TO SUNSET 102

98

POSITION

TIME	LAT.	LONG.	
0400	30°50N	124°05W	
0600	30°50N	124°31W	124°20'
0800	30°49N	124°10W	124°01'
1000	30°50N	123°52W	123°42'
1200	30°50N	123°32W	123°21'
1400	30°52N	123°10W	122°59'
1600	30°53N	122°48W	122°38'
1800	30°54N	122°27W	
2000	31°06N	122°26W	
2400	31°47N	122°28W	

COURSE OR SPEED CHANGE

E.A.C. CRUISE DATA

SHIP SS North Star DATE 23 October 1967

	TIME	LAT.	LONG.
SUNRISE	0727	31°37'N	125°02'W
SUNSET	1827 ¹⁶	31°04'N	126°24'W

TOTAL MILES TRAVELED SUNRISE TO SUNSET 106

POSITION

TIME	LAT.	LONG.	
0400	31°37'N	124°28'W	
0600	31°36'N	124°46'W	124°57'
0800	31°37'N	125°08'W	125°18'
1000	31°37'N	125°28'W	125°40'
1200	31°36'N	125°51'W	126°02'
1400	31°37'N	126°14'W	31°37' 126°25'
1600	31°25'N	126°28'W	31°16'
1800	31°08'N	126°26'W	
2000	30°52'N	126°18'W	
2400	30°50'N	125°36'W	

COURSE OR SPEED CHANGE

FROM	TO	(AT)	LAT.	LONG.
1502	270	180	31°37'N	126°25'W
1915	180	090	30°54'N	126°25'W

E.A.C. CRUISE DATA

SHIP U.S. Hall Aug-40 DATE 22 October '67

	TIME	LAT.	LONG.
SUNRISE	0713	32°05'N	121°06'W
SUNSET	1836	31°40'N	122°43'W

TOTAL MILES TRAVELED SUNRISE TO SUNSET 108

POSITION

TIME	LAT.	LONG.	
0400	32°28'N	121°19'W	32°28' 121°05'
0600	32°17'N	121°05'W	32°08' 121°05'
0800	31°58'N	121°05'W	
1000	31°41'N	121°14'W	121°29'
1200	31°42'N	121°33'W	121°44'
1400	31°41'N	121°55'W	122°06'
1600	31°40'N	122°17'W	122°28'
1800	31°40'N	122°38'W	
2000	31°40'N	122°58'W	
2400	31°38'N	123°40'W	

COURSE OR SPEED CHANGE

FROM	TO	(AT)	LAT.	LONG.
<u>0500</u>	090	180	32°28'N	121°05'W
0907	180	270	31°44'N	121°06'W

E.A.C. CRUISE DATA

SHIP CH HULL 3886-40

DATE 21 October '67

	TIME	LAT.	LONG.
SUNRISE	0725	32°32' N	125°09' W
SUNSET	1835	32°27' N	123°04' W

TOTAL MILES TRAVELED SUNRISE TO SUNSET 108

POSITION

TIME	LAT.	LONG.
0400	32°33' N	125°48' W
0600	32°33' N	125°26' W
0800	32°32' N	125°02' W
1000	32°33' N	124°35' W
1200	32°33' N	124°15' W
1400	32°31' N	123°54' W
1600	32°30' N	123°31' W
1800	32°27' N	123°10' W
2000	32°27' N	122°46' W
2400	32°26' N	122°04' W

COURSE OR SPEED CHANGE

E.A.C. CRUISE DATA

SHIP S.S. HALL YAGDATE 20 Oct. 1967

	TIME	LAT.	LONG.
SUNRISE	0724	33°24'N	124°19'W
SUNSET	1847	33°11'N	126°12'W

SR 10/21 0725

TOTAL MILES TRAVELED SUNRISE TO SUNSET

96

POSITION

TIME	LAT.	LONG.
0400	33°22'N	123°45'W
0600	33°22'N	124°05'W
0800	33°24'N	124°25'W
1000	33°22'N	124°45'W
1200	33-22N	125-06W
1400	33-20N	125-29W
1600	33-20N	125-47W
1800	33-18N	126°02'W
2000	33-17N	126°20'W
2400	32°40N	126°36'W

124°35'
124°35'
125°18'
125°28'
125°55'
126°11'

COURSE OR SPEED CHANGE

FROM	TO	(AT)	LAT.	LONG.
<u>3015</u>	<u>270</u>	<u>180</u>	<u>33-16N</u>	<u>126°36</u>

E.A.C. CRUISE DATA

SHIP U.S. Hall Ag-40 DATE 19 Oct 1962

	TIME	LAT.	LONG.
SUNRISE	0717	34°07' N	122°10' W
SUNSET	1830	33°24' N	122°02'

TOTAL MILES TRAVELED SUNRISE TO SUNSET (105)

POSITION

TIME	LAT.	LONG.	
0400	34°08' N	122°45' W	122°34'
0600	34°07' N	122°22' W	122°10'
0800	34°06' N	121°59' W	121°42'
1000	34°05' N	121°38' W	34°06' 121°28'
1200	33°55' N	121°28' W	33°55'
1400	33°39' N	121°28' W	33°28' 121°28'
1600	33°24' N	121°33' W	3
1800	33°21' N	121°57' W	121°45'
2000	33°21' N	122°00' W	122°09'
2400	33°20' N	123°03' W	

COURSE OR SPEED CHANGE

FROM	TO	(AT)	LAT.	LONG.
1100	090	180	34°06' N	121°28' W
1520	180	270	33°25' N	121°28' W

E.A.C. CRUISE DATA

SHIP U.S. HARBOR 40 DATE 18 Oct 1967

	TIME	LAT.	LONG.
SUNRISE	0733	34°23'N	126°28'W

SUNSET 1842 34-08N 124-33W

102

TOTAL MILES TRAVELED SUNRISE TO SUNSET 1041.0

POSITION

TIME	LAT.	LONG.
0400	34° 56' N	126° 25' W
0600	34° 36' N	126° 31' W
0800	34° 18' N	126° 26' W
1000	34° 13' N	126° 09' W
1200	34-13 N	125-47 W
1400	34-12 N	125-28 W
1600	34-11 N	125-04 W
1800	34-10 N	124-41 W
2000	34-08 N	124-19 W
2400	34-08 N	123° 33' W

125°52' 0100
34°57' 126°03' 0200
126°14' 0300

34°27' 126°28'
34°13' 126°19'
125°58'
125°38'
125°16'
124°52'
124°30'

COURSE OR SPEED CHANGE

FROM	TO	(AT)	LAT.	LONG.
0410	270	180	34°56N	126°26W
0825	180	090 270	34°13N	126°24W

E.A.C. CRUISE DATA

SHIP SS HAN YAG-40DATE 17 OCT. 1967

	TIME	LAT.	LONG.
SUNRISE	0717	35°00' N	122°45' W
SUNSET	1843	35°00' N	124°42' W

TOTAL MILES TRAVELED SUNRISE TO SUNSET 97

POSITION

TIME	LAT.	LONG.
0400	35°04' N	122°01' W
0600	35°01' N	122°30' W
0800	35°00' N	122°55' W
1000	35°00' N	123°08' W
1200	35°00' N	123°29' W
1400	34°59' N	124°00' W
1600	34°59' N	124°17' W
1800	34°59' N	124°37' W
2000	35°00' N	124°57' W
2400	34°58' N	125°41' W

35°00' 122°42'
 123°02'
 123°18'
 123°44'
 124°08'
 124°27'
 124°47'

COURSE OR SPEED CHANGE

FROM	TO	(AT)	LAT.	LONG.	
0400 169	270	35°04'	122°01' W		at Pt. ASH

E.A.C. CRUISE DATA

SHIP S.S. HULL 14A6-40 DATE 16 Oct. 1967

TIME LAT. LONG.

SUNRISE

SUNSET 1834 36°32' 122°24'

1240 57 miles
TOTAL MILES TRAVELED ~~SUNRISE TO SUNSET~~ 98 miles

POSITION

TIME	LAT.	LONG.		
0400				
0600				
0800				
1000				
1200	37°32.8 N	122°38.7 W	37°22'	122°39'
1400	37°12' N	122°39. W	37°04'	122°36'
1600	36°55 N	122°34 W	36-46'	122-30'
1800	36° 37 N	122°26 W	36-28'	122°22'
2000	36° 18 N	122°18 W		
2400	35°40 N	122°11. W		

COURSE OR SPEED CHANGE